ACC NR: AP6033376

to 1100°C in 100° intervals. Measurement error was less than 10% and average deviation was 10-15%. Virtual viscosity was determined on a laboratory unit with continuous temperature and torsion angle registering equipment. Overall viscosity measurement error did not exceed 20%. The results of these experiments show that the virtual viscosity of M-23 porcelain at 700°C and above is less than 10^{13} poises and is 10^{12} poises at 1000°C. At a virtual viscosity of 10^{13} poises, glass enters a viscous fluid state. This is accounted for by the fact that the glass phase in porcelain is 50-55% and as the viscosity of the glass phase decreases, the strength of the porcelain also decreases. This occurs approximately at 900°C where the bending stress of porcelain decreases and porcelain specimens undergo severe deformation at 1000°C. Bending stress is not as great at 700°C for steatites as for porcelain. Virtual viscosity for steatites is 10^{13} poises at 700°. SK-1 steatite specimens buckled at 900°C and at 50% of the destructive force for the original specimen. SNB specimens did not bend significantly at 800°C. The virtual viscosity for SNB specimens was 10^{13} poises at 800°C. Mullite corundum MG-2 specimens retained their strength characteristics up to 700°C. GB-7 alumina on the other hand started losing its mechanical strength at 600°C and reached 40% of its original strength at 900°C. This strength reduction is caused by the composition of the glass phase. On the other hand, corundum microlite with a small glass phase retained its strength up to 1000°C. Orig. art. has: 3 figures, 1 table.

SUB CODE: 11, 09/ SUBM DATE: None/ ORIG REF: 004

Card 2/2

ACC NR: AP6033376 SOURCE CODE: UR/0292/66/000/008/0057/0058

AUTHOR: Smirnova, T. M. (Engineer); Kostyukov, N. S. (Candidate of technical sciences); Kharitonov, F. Ya. (Candidate of technical sciences)

ORG: None

TITLE: Ceramic electrical insulating materials at higher temperatures

SOURCE: Elektrotekhnika, no. 8, 1966, 57-58

TOPIC TAGS: electric insulation, high temperature ceramic material, solid viscosity

ABSTRACT: The authors study the mechanical and thermoplastic properties of ceramic electrical insulating materials at temperatures up to 1000°C and higher by measuring virtual viscosity η. The following materials were studied: M-23 porcelain whose basic crystal phases are mullite and quartz, SK-1 and SNB steatites whose basic crystal phase is magnesium metasilicate, MG-2 mullite-corundum whose basic crystal phases are in the form of mullite and corundum and GB-7 alumina consisting of corundum and 3% glass phases along with microlite. Tables are given for the physicotechnical properties of these materials. Specimens made from these materials by standard methods were tested for mechanical strength under bending as a function of temperature by the three-point method on a hydraulic press using uniform automatic loading. The specimens were heated in a tubular Silit furnace. Ten specimens each were tested from 25

Card 1/2

UDC: 621.315.612.001.4

SMIRNOVA, T.M., inzh.; ZAKHAROV, P.P., inzh.; KOSTYUKOV, N.S., kand. tekhn. nauk; KHARITONOV, F.Ya., kand. tekhn. nauk

Deformation of ceramic products under the effect of their own weight during firing. Stek.i ker. 22 no.10:33-35 O '65.

(MIRA 18:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut.

KOSTYUKOV, N.S.; ANTONOVA, N.[illegible]; DMITRIYEV, V.I.

S[illegible] effect in electrical [illegible]. [illegible]
no.9:2175-2177 S '65.
([illegible] 18:10)

1. Moskovskiy [illegible] i [illegible]kerami[illegible]cheskiy institut.

L 00480-66

ACCESSION NR: AP5020557

hours, and were then cooled rapidly (1 hour). The temperature gradient in the middle of the sample was 150 degrees/cm, and was determined from the temperature distribution along the sample. A sample, after heat treatment, was cut into 15 equal pieces perpendicular to its axis. The chemical composition of each piece of the rod was determined by chemical and spectral analysis. Experimental results permit the following conclusions. For porcelain materials MZA, MG-12 zv, and MG-12 ch, the thermal diffusion effect with respect to most of the oxides entering into the composition of the materials does not exceed the experimental error. For aluminum oxide, the magnitude of the thermal diffusion slightly exceeds the experimental error. For ferric oxide, thermal diffusion along the surface of the porcelain is directed toward the colder parts. Orig. art. has: 4 figures and 4 tables

ASSOCIATION: None

SUBMITTED: 15Oct64 ENCL: 00 SUB CODE: MT, TD

NR REF SOV: 004 OTHER: 011

mlr

Card 2/2

L 00480-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(t)/EWG(v)/EPA(w)-2/T/EWP(b) WH
ACCESSION NR: AP5020557 UR/0294/65/003/004/0555/0561
621.315.612:536.45

AUTHOR: Kostyukov, N. S.; Antonova, N. P.

TITLE: Some questions on the behavior of ceramic insulating materials at high temperatures

SOURCE: Teplofizika vysokikh temperatur, v. 3, no. 4, 1965, 555-561

TOPIC TAGS: high temperature ceramic materials, insulating materials, thermal diffusion, aluminum oxide, iron oxide/MG-12 zn ceramic material, MB-12 ch ceramic material, MZA ceramic material

ABSTRACT: The thermal diffusion effect was studied for types MG-12 zv, MG-12 ch, and MZA porcelain materials, whose chemical compositions are shown in a table. Samples were prepared in the form of rods 20 mm in diameter and 120-150 mm long by conventional ceramic technology. To study the thermal diffusion effect, the end of one rod was placed in a furnace and heated to 1360C and a second rod was at room temperature. The samples were held at these temperatures for period of time varying from a few tens of hours to 600-900

Card 1/2

ACCESSION NR: AP4011772

ressed from the hot toward the cold end. A 3-cm fragment cut from the central portion of each specimen which had been heated for 450 hours was next boiled in concentrated hydrochloric acid. A large amount of iron was found in the solution, but the color of the rod did not change significantly. This proved that diffusion progressed not only on the surface but throughout a thin surficial layer of porcelain. Treating the rods with hydrofluoric acid removed all the stain. The diffusion layer was calculated to be 3 μ thick, the concentration in the central part of rods was 0.03% and the coefficient of diffusion at 1120-880C was 0.005 degree^{-1}. The activation energy was determined as 16 kcal/mol at an average temperature of 1273K. It was not possible to prove experimentally that the process involved the whole Fe_2O_3 and not just the Fe^{+++}ion. Orig. art. has: 5 graphs and 3 formulas.

ASSOCIATION: Gosudarstvenny*y issledovatel'skiy elektrokeramicheskiy institut. Moscow (State Institute of Electroceramic Research)

SUBMITTED: 09Nov62 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 000

Card 2/2

ACCESSION NR: AP4011772 S/0181/64/006/001/0301/0303

AUTHOR: Kostyukov, N. S.

TITLE: Thermal diffusion of ferric oxide on the surface of porcelain

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 301-303

TOPIC TAGS: ferric oxide, thermal diffusion, porcelain, porcelain diffusion, electrotechnical porcelain, ferric oxide inclusion, microphotometer MF-2

ABSTRACT: Porcelain rods 20 mm in diameter and 120-150 mm long were drawn, dried, and tempered. Their surfaces were found to be covered with fine brown spots of Fe_2O_3. One end of each rod was heated to 1360C in a silit resistance oven while the other end was kept at room temperature. Temperature gradient in the central portion was 150 degrees/cm. After the specimens remained in these conditions for periods varying from 2 to 450 hours (and were then chilled in 1 hr), the brown discoloration was found to be concentrated at the middle portion in the temperature zone of 810-960C (the heated end was free of stain while the cold end had undergone no perceptible change). The intensity of coloration was next measured photometrically with a microphotometer MF-2. The concentration of Fe_2O_3 began to be apparent in 19 hours and increased with time, while the process of thermodiffusion prog-

Card 1/2

ACCESSION NR: AP4039019

ship between these forces determines the mean time of the existence of a bubble in the melt. The investigated materials were one steatite -- composition TK-21 -- and two porcelains -- M-23 and M-Z-A.-- which are close in composition to industrial materials and two porcelains -- MG-12-ch and MG-12-Zv -- which differed by a higher content of silica. The viscosity of these materials was determined dynamically and statically. The viscosity is lowered as well as the change of viscosity with an increase in the rate of heating. Since the surface tension changes only 4 - 6 dynes/cm when the temperature is increased 100 - 150C, then at the same duration of baking, but with decrease of viscosity by two orders of magnitude (during overbaking), the size of pores increases also by two orders of magnitude. Thus, increase of temperature is accompanied by a sharp decrease in viscosity due to the increase of pore sizes. Similar effects may be observed in the presence of temperature gradients in the furnace during the baking of large size insulators. Increase of the duration in the maximum temperature zone and the presence of vandium and chromium oxides in the batch cause analogous effects. Orig. art. has: 4 tables, 4 figures and 14 equations.

Card 2/3

ACCESSION NR: AP4039019 S/0072/64/000/005/0025/0029

AUTHORS: Kharitonov, F.Ya. (Engineer); Kostyukov, N.S. (Candidate of technical sciences); Smirnova, T.M. (Engineer)

TITLE: Thermoplastic properties and sintering behavior of ceramic electric insulators

SOURCE: Steklo i keramika, no. 5, 1964, 25-29

TOPIC TAGS: sintering, porcelain, steatite, viscosity, surface tension, pore size, thermoplastic property, electric insulator, ceramic insulator

ABSTRACT: Excluding the effects of the external factors, the durability of ceramic insulators is dependent on the physical, technical, electric and mechanical characteristics of the material. These characteristics depend to a great extent on the degree of sintering of the ceramic material. This work is concerned with the factors and regularities which govern the degree of sintering. Sintering is accompanied by the formation of closed pores in a viscous silicate melt. Bubbles of gas in such a melt are affected by surface tension and intermolecular attraction forces. The relation-

Card 1/3

L 3468-65

ACCESSION NR: AP4048687

ASSOCIATION: Moskovskiy ordena Lenina energeticheskiy institut (Moscow Power Engineering Institute)

SUBMITTED: 28Jan63 ENCL: 00 SUB CODE: MT, EM

NO REF SOV: 004 OTHER: 000 JPRS

Card 2/2

L 8468-65 ASD(m)-3

ACCESSION NR: AP4048687 S/0139/64/000/004/0076/0079

AUTHOR: Drozdov, N. G.; Garevskiy, V. N.; Kostyukov, N. S. B

TITLE: How diffusion processes affect the breakdown voltage of "aged" porcelain

SOURCE: IVUZ. Fizika, no. 4, 1964, 76-79

TOPIC TAGS: porcelain, breakdown voltage, electromotive force

ABSTRACT: A study is made of the influence of diffusion processes on the value of the breakdown voltage in "aged" porcelain. A calculation is made of the value of the diffusion emf which reduces the value of the breakdown voltage when the latter coincides with the field of "aging" of the porcelain and increases the breakdown voltage when these fields do not coincide. It is shown that the physical picture corresponds qualitatively with that observed experimentally during breakdown of "aged" porcelain.

Card 1/2

DROZDOV, N.G.; GAREVSK[illegible]Y, V.N.; K[illegible]TYUK[illegible], [illegible]

Effect of diffusion processes on the breakdown voltage of "aged" porcelain. Izv. vys. ucheb. zav.; fiz. no.4:[illegible]–79 '[illegible] (MIRA 17:8)

1. Moskovskiy ordena Lenina energeticheskiy institut.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300035-6

Soret's coefficient in two- ...

solid are regarded as mobile, Soret's coefficient is

$$S = \frac{d \ln(C_1/C_2)}{dT} = \frac{C_2^2 D_2 Q_{02} - C_1^2 D_1 Q_{01} + C_1 C_2 (D_2 Q_{02} - D_1 Q_{01})}{C_1 C_2 (D_1 + D_2) RT^2}$$ and

$$P = -(D_1 + D_2) \frac{\partial C}{\partial x} + \frac{D_2 C_2 Q_{02} - D_1 C_1 Q_{01}}{RT^2} \frac{\partial T}{\partial x}$$. In case P is the flow of the one substance relative to the other. The Q symbols are the activation energies. Calculations made with these formulas for nitrogen and carbon in alpha-iron and for gold in copper showed sufficient agreement with experimental data by L. S. Darken and R. A. Oriani (Acta Metallurgica, 2, 841, 1954). There is 1 table.

SUBMITTED: June 25, 1962

Card 2/2

43135
S/181/62/004/011/039/049
B108/B186

AUTHOR: Kostyukov, N. S.

TITLE: Soret's coefficient in two-component solids

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3326-3327

TEXT: Soret's coefficient characterizing the degree of separation between the components when a temperature gradient is present is determined by the transfer heat, i.e. by the heat conveyed by unit mass of the component at constant temperature. This heat cannot, however, be determined directly. A model proposed by A. S. Palatnik and A. P. Lyubchenko (DAN SSSR, 117, 3, 407, 1957) enables the diffusion equations for a solid with a temperature gradient to find Soret's coefficient at zero flow P of substance. When only the impurity substance in a base substance is assumed to be capable of moving, Soret's coefficient is $S = D_T/D$ and

$P = -D \frac{\partial C}{\partial x} + D_T C \frac{\partial T}{\partial x}$, where D_T is the coefficient of thermal diffusion, C is the molar concentration. When however both components of a two-component

Card 1/2

mathematical interpretation, the straight part of the deformation curve is extended to the left (x-axis), and divided into equal, 5-mm long sections by means of vertical lines. The distances from the x-axis to the points of intersection of the vertical sections K_n and K_{n-1} with the deformation curve indicate the curvature at given instants. The deformation angle $\Delta\varphi$ within the time $\Delta\tau$ = 125 sec is determined therefrom, and next, the viscosity is determined in poises by means of calculation formulas. Calculation results permit constructing $\log\eta$ as a function of temperature or time. There are 4 figures and 2 Soviet-bloc references.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut (State Scientific Research Institute of Electroceramics)

S/032/61/027/004/029/028
B103/B201

of four pins 5. Two arms 6 welded on plate 4 support the whole system hanging from bracket carrier 7 in the wall. A mobile cylindrical bar 8 made of refractory ceramics is by means of pin 9 connected to balance arm 10 via shaft 12 which rotates freely in bearing 11. Drive pulley 13 is fixed to the upper end of the shaft 13 and weights 14 are connected by means of threads guided over rolls 15. Three adjusting screws 17 regulate height and inclination of mirror 16. To mount the sample in the oven, the latter is lowered by a worm drive, until the clamping device is freely accessible. Drive pulley 13 is turned by about 1/3 of the full turn, and the specimen is inserted between the mobile and the fixed clamping device. The oven is then lifted such that the specimen is brought into its center, whereupon the heater elements are heated with adjustable voltage. The drum rotates at speeds of 8, 2, 0.5, and 0.21 rpm. The temperature is measured prior to recording, and the temperature curve is calibrated. Pyrometer of the type МПП-154 (MPP-154) is used for this purpose. Recording has been performed by the authors at 0.5 rpm. Fig. 3 presents the course of the deformation curve of an electrotechnical porcelain specimen under dynamic conditions. Torsion began at 990°C. The curve shows a distinct break between 1060 and 1110°C. In the

S/032/61/027/004/025/028
B105/B201

light beams on photopaper inserted in a drum by Kurnakov (Abstracter's note: not described in the text). The deformation of the specimen is only recorded under static conditions. The torsional force is in this case applied to the specimen at the instant when the temperature of recording is attained. Cylindrical specimens with a neck 10 mm in diameter and 8 mm in height, serving as the working piece, are used. The torsional moment is transmitted via the upper and the lower groove to the thickened parts of the specimen. A scheme of the apparatus is presented in Fig. 1. A Silit oven 2 rests upon the lifting table 1. The torsion system 3 and the table are fastened to brackets in the floor and in the wall, respectively. An asbestos-cement plate 4 protects system 3 against the heat. The wall chest houses the temperature-recording mirror galvanometer 6 (Type M-21 (M-21)), two light sources 7, mirror 8, Kurnakov drum 9, shunt 10 as a connection of thermocouple 11 to 6, autotransformer 12, and Warren motor 13 with reductor 14 for raising the voltage in the heater elements of the oven. Fig. 2 presents the construction of the torsion system. The fixed cylinder 1 made of refractory ceramics is fastened to the lower steel plate 2 by means of four screws 3. The upper plate 4 is linked to the lower one by means

21161

S/032/61/027/004/025/028
B103/B201

15.2300 1273, 1136, 1160

AUTHORS: Valeyev, Kh. S., Kostyukov, N. S., and Smirnova, T. M.

TITLE: Measuring apparatus for viscosity with continuous recording of the torsion angle and of temperature

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 472-474

TEXT: The authors worked out the device of viscosity measurement between 10^8 and 10^{14} poises for ceramic substances (refractories, electrical and radiotechnical ceramics) in the plastic state between 20 and 1350°C. The torsion rate of a cylindrical specimen is measured under constant load. Since the viscosity of ceramic substances as well as of structured liquids depends not only on temperature, but on time as well, this property must be determined both under dynamic and static conditions. The authors' instrument serves for determining these two dependences. Furthermore, it can be used to record the deformations of the specimen while cooling (in the reverse motion). In measurements under dynamic conditions, temperature and deformation are recorded by means of two

Card 1/7

29685
S/181/61/003/010/007/036
B102/B108

The effect of a temperature...

ASSOCIATION: Gosudarstvennyy issledovatel'skiy elektrokeramicheskiy institut Moskva (State Research Institute of Electroceramics, Moscow)

SUBMITTED: April 4, 1961

Card 3/3

The effect of a temperature...

$$\frac{\partial \sigma}{\partial t} = \frac{\partial}{\partial x}\left(D\frac{\partial \sigma}{\partial x}\right) - \frac{1}{R}\frac{\partial}{\partial x}\left(\frac{D\sigma}{T}\right)\frac{\partial Q}{\partial x} + \frac{1}{R}\frac{\partial}{\partial x}\left(\frac{\sigma D Q}{T^2}\right)\frac{\partial T}{\partial x}, \qquad (3)$$

where the first term renders the classical Fick's law. If Q_o is known for a certain T_o, $Q = Q_o + v_o \varkappa x \frac{dQ}{dv}\frac{\partial T}{\partial x}$, since Q depends only on the temperature change. dQ/dv = const, when no phase conversions occur. $\varkappa$ denotes the cubical expansion coefficient, v the specific volume. When temperature changes linearly, (2) may be rewritten as

$$\frac{\partial \sigma}{\partial t} = \frac{\partial}{\partial x}\left(D\frac{\partial \sigma}{\partial x}\right) + \frac{Q}{R}\frac{\partial}{\partial x}\left(\frac{D\sigma}{T^2}\right)\frac{\partial T}{\partial x} - \frac{T}{R}\frac{\partial}{\partial x}\left(\frac{\sigma D}{T^2}\right)\frac{\partial Q}{\partial x}. \qquad (5)$$

The contributions from the second and third terms are estimated for rock salt: With $\varkappa = 1.2\cdot10^{-4}$, Q = 40 kcal, $\frac{d \ln Q}{d \ln v} \sim 2$, $\partial T/\partial x \sim 10^2$ deg/cm one obtains $\partial Q/\partial x \sim 1$ kcal/cm, $(Q/T)\partial T/\partial x \sim 4$ kcal/cm at $T \sim 10^3$ °C. There are 2 references: 1 Soviet and 1 non-Soviet.

Card 2/3

24.7500 also 3009 1144, 1454

29685 S/181/61/003/010/007/036
B102/B108

AUTHOR: Kostyukov, N. S.

TITLE: The effect of a temperature gradient upon diffusion in solids

PERIODICAL: Fizika tverdogo tela, v. 3, no. 10, 1961, 2953 - 2954

TEXT: L. S. Palatnik and A. P. Lyubchenko (DAN SSSR, 117, 3, 407, 1957) have pointed out the possibility of generalizing the second differential equation of diffusion (Fick's equation), taking into account mechanical stress and temperature gradients. For zero stress gradient, the effect of the temperature gradient may be taken into account with the following ansatz for the diffusion equation $\frac{\partial c}{\partial t} = \frac{\partial}{\partial x}\left[D\left(\frac{\partial c}{\partial x} - \frac{c}{RT}\frac{\partial Q}{\partial x} + \frac{Qc}{RT^2}\frac{\partial T}{\partial x}\right)\right]$. (2)

c denotes the molar concentration, D the diffusion coefficient, t the time. The probability α for transitions of atoms from one equilibrium position into another is given by $\alpha = A\exp(-Q/RT)$, with $\frac{1}{\alpha}\frac{\partial \alpha}{\partial x} = -\frac{1}{RT}\frac{\partial Q}{\partial x} + \frac{Q}{RT^2}\frac{\partial T}{\partial x}$. This equation is rewritten as

Card 1/3

21822

S/105/61/000/005/001/005
B116/B221

The magnitude of the ...

in the paper (Ref. 1). There are 4 Soviet-bloc references.

SUBMITTED: December 31, 1960

Card 3/3

The magnitude of the ...

given as attaining some hundred and even some thousand volts. These discrepancies are explained as experimental errors by the authors mentioned. The authors checked the above data on an X-ray apparatus with a tungsten anode at a voltage of 30 and 45 kv at the valve and 5, 10, and 14 ma. On the basis of the results obtained, the authors make the following statements: The electromotive force generated by the effect of X-ray irradiation alone amounts to 0.1 v. Electromotive force of several hundred or several thousand volts is generated by the simultaneous action of high voltage and X-ray irradiation. The rise of such a voltage on the specimen becomes clear if one considers the specimen as a part of the dielectrics surrounding the X-ray tube. If there is no X-ray irradiation, the dielectrics surrounding the tube (the air) show high insulating properties, a high ρ_v, and an insignificant voltage drop on the specimen. If X-ray irradiation and high voltage are switched on at the same time, the air is strongly ionized, the ρ_v of the air is decreased and the voltage drop on the specimen increases. Thus, it follows that the electromotive force increases together with the increase of the intensity of irradiation according to the exponential law, as observed

24.7800 (1143, 1153, 1160)

S/105/61/000/005/001/003
B116/B221

AUTHORS: Drozdov, N. G., Kostyukov, N. S., and Sakharov, S. S.

TITLE: The magnitude of the electromotive force generated by irradiation of dielectrics

PERIODICAL: Elektrichestvo, no. 5, 1961, 68-69

TEXT: As concerns the determination of the magnitude of the electromotive force generated by soft X-ray irradiation of dielectrics, there are considerable discrepancies to be found in a number of papers, e.g. by F. I. Kolomiytsev and A. Ya. Yakunin (Ref. 1: "Izv. vysshikh uchebnykh zavedeniy (Fizika)," 1958, no. 5), by F. I. Kolomiytsev and F. F. Kodzhespirov (Ref. 2: Fizika dielektrikov, Trudy vsesoyuznoy konferentsii po fizike dielektrikov, g. Dnepropetrovsk, 1956), by F. F. Kodzhespirov (Ref. 3: Tezisy dokladov Vtoroy vsesoyuznoy konferentsii po fizike dielektrikov, Izd. Akademii nauk SSSR, 1958), and by F. F. Kolomiytsev and A. Ya. Yakunin (Ref. 4: as in Ref. 3). While the same authors, working with the same material, in older papers gave the value of 0.1 v and less for the magnitude of the emf, this value is in the above papers

KOSTYUKOV, N.S., inzh.; SMIRNOVA, T.M., inzh.

Behavior of ceramic dielectrics under the effect of hard γ-rays.
Trudy GIEKI no.4:120-127 '60. (MIRA 15:1)
(Ceramics--Electric properties)
(Gamma rays--Industrial applications)

Kostyukov, N.S.

Vsesoyuznaya konferentsiya po fizike dielektrikov. 2d, 1958

Fizika dielektrikov; trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics; Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.L. Starosadonskaya; Tech. Ed.: I.N. Dorokhina; Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.V. Filippova, Candidate of Physics and Mathematics.

PURPOSE: This collection of reports is intended for scientists investigating the physics of dielectrics.

COVERAGE: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with specific inductive capacitance of various crystals, chemical compounds, and ceramics. Photoelectrets, ferroelectric crystals, and various radiation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdowns of dielectrics which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya (No. 3, 1960). No personalities are mentioned. References accompany each report.

KOSTYUKOV, N. S.: Master Tech Sci (diss) -- "Diffusion and thermodiffusion currents in ceramic materials with ionic permeability". Moscow, 1959. 12 pp (Min Higher Educ USSR, Moscow Order of Lenin Power Engineering Inst), 150 copies (KL, No 13, 1959, 105)

AUTHORS: Konov, F.A., Kolesnikov, N.A., Kolesnikov, D.G. 32-3-49/52

TITLE: The Automation of the Filtering Process of Injection Solutions (Avtomatizatsiya protsessa fil'trovaniya in"yektsionnykh rastvorov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 3, pp. 375-375 (USSR)

ABSTRACT: For the continuous and uniform feeding of suspensions onto the filter when filtering injection solutions an automatic system was developed. In principle the scheme consists of four coils, two selenium rectifiers and two relays which form part of a common circuit, which, by the rising or falling motion of an iron core (which is enclosed in a glass ampule and generates induction current) opens and closes an electromagnetic three-way faucet. The latter is mounted on the container of the liquid, which, besides, is connected with the vacuum as well as with the spare container for the liquid and with the filter. By the interaction between the vacuum and the three-way faucet connected with the atmosphere, which is connected with the level of the liquid (by a float), the container is always filled up again as soon as the level is reduced to a certain height, so that in this way a continuous feeding of filter is attained. There is 1 figure, and 1 reference, 1 of which is Slavic.

ASSOCIATION: Scientific Research Institute for Chemical Pharmaceutics, Khar'kov (Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut)

AVAILABLE Library of Congress

Card 1/1 1. Injection solutions-Filtering Processes

AUTHORS: Avetikov, V.G., Kostyukov, N.S., Kuznetsov, B.Ye. 32-3-37/52

TITLE: The Modernization of the High-Temperature Vacuum Furnace TVV-2M (Modernizatsiya vysokotemperaturnoy vakuumnoy pechi tipa TVV-2M)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 3, pp. 356-358 (USSR)

ABSTRACT: A modification of the laboratory furnace TVV-2M produced by the "Platino Devices" is described. The modification consists mainly in exchanging the existing tungsten heating elements for such with graphite and the simultaneous increase of dimensions. At working temperatures of more than 2200° C the tungsten heating elements can again be used. Experiments showed that the durability of graphite furnaces is three to four times greater than that of tungsten furnaces and amounts to about 500 working hours, apart from the fact that the former are considerably less expensive. Whereas tungsten furnaces take one day for melting at 1700 to 1900° C, five melts can be carried out per day in graphite furnaces because the latter are not so sensitive to temperature and vacuum when being switched off, which means a considerable saving of time. An autotransformer of the type PN-75 produced by the "Gosteasvet" plant was built into the reconstructed furnace. Two schematical drawings showing the two furnaces and the necessary explanations are given. There are 2 figures.

ASSOCIATION: State Scientific Research Institute for Electroceramics (Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut)

AVAILABLE: Library of Congress

1. Laboratory furnace- Modification

KOSTYUKOV, N.S., inzh.

Thermodiffusion currents in porcelain. Trudy GIEKI no.2:53-66 '57.
(Porcelain) (Thermoelectricity) (MIRA 11:7)

the results obtained and those of F.F. Rogers and also L. Vodop'yanov and Skanavi, is explained by the low neutron densities which result from nuclear photo-effects.
6 figures. 6 references.

[Abstractor's note: Complete translation.]

(at a rate of 2 mrads/sec) in the range of temperature between normal ambient and 773 °K (500 °C), the value of ρ during irradiation was always lower than before irradiation. As the temperature increases the difference in ρ before and after irradiation becomes very slight. This is because the number of carriers formed during irradiation increases less at the higher temperatures. The value of ρ for grade M-75 on irradiation with γ-quanta of energy 1.3 MeV is higher than before irradiation. The increase in ρ in the low-temperature range is explained by the circumstance that for grade M-75, ionization during irradiation increases the rate of accumulation of space charge. If grade M-75 is irradiated with γ-quanta with an energy of 50-250 MeV for 40 h, then in the temperature range from normal ambient to about 393 °K (120 °C), ρ diminishes by about 75% (before irradiation ρ is approximately 10^{13} ohm.cm). This is explained by an increase in the concentration of structural defects caused by transfer of part of the ions into the internodes under the action of secondary photo-nuclear particles. When specimens of $BaTiO_3$ are irradiated for 56 hours by γ-quanta of 130-250 MeV, the values of the piezo-moduli, ρ and tan δ do not change. The difference between

S/196/63/000/002/008/026
E194/E155

AUTHORS: Kostyukov, N.S., and Smirnova, T.M.

TITLE: The behavior of ceramic dielectrics exposed to very hard gamma radiation

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.2, 1963, 13, abstract 2 B 73. (Tr. Gos. issled. elektrokeram. in-ta, no.4, 1960, 120-127)

TEXT: The influence of γ-radiation with an energy of 30 to 260 MeV on electrical porcelain grade M-23 (M-23), on capacitor material based on TiO_2 grade M-75, $BaTiO_3$ and high-frequency steatites grade TK-21, CK-1 (SK-1), C-61 (S-61), was studied. Chemical analyses of these materials are given and possible (published) photo-nuclear reactions of the component elements are described. By analysis of the activity curves of irradiated material, determinations are made of the half-decay times of the components, and hypotheses are proposed concerning the nature of photo-nuclear reactions. A general tendency to reduction of ε was observed in irradiated specimens of grade M-23. If these specimens were irradiated with quanta with an energy of 1.3 MeV

Card 1/3

VALEYEV, Kh.S., kand.tekhn.nauk (Moskva); GAREVSKIY, V.N., inzh. (Moskva); KOSTYUKOV, N.S., kand.tekhn.nauk (Moskva)

Change in the electrical strength of high-voltage porcelain subject to the action of high-voltage d.c. with long duration. Elektrichestvo no.1:59-61 Ja '63. (MIRA 16:2)
(Electric insulators and insulation)
(Porcelain--Electric properties)

KOSTYUKOV, N.N., inzh.

The MZT-1 semiautomatic machine for cleaning steel castings.
Mashinostroenie no.6:49-50 N-D '62. (MIRA 16:2)

1. Nauchno-issledovatel'skiy institut tekhnologii traktornogo i sel'skokhozyaystvennogo mashinostroyeniya.
(Steel castings--Cleaning)

KOSTYUKOV, N.N., starshiy inzh.

Over-all mechanization of lowering and lifting operations in boring. Bezop.truda v prom. 5 no.1:37 Ja '61. (MIRA 14:2)

1. Gosgortekhnadzor RSFSR.

(Mine hoisting)

KOSTYUKOV, N.N.

Shortcomings in the design of drilling rigs. Neftianik 5 no.5:19-20 My '60. (MIRA 13:6)
(Oil well drilling rigs)

KUTUKOV, A.I., red.; ZAYTSEV, A.P., red.; DROGALIN, G.V., red.; POLESIN, Ya.L., red.; KOSTYUKOV, N.N., red.; KURAS, D.M., red.; LUZHNIKOV, A.M., red.; RODIONOV, I.S., red.; BLOKH, S.S., red.; SULTANOV, D.K., red.; BIBILUROV, V.P., red.; PETROV, A.I., red.; KHARCHEVNIKOV, N.M., red.; ANDRIANOV, K.I., red.; GADZHINSKAYA, M., red.izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.

[Safety regulations for petroleum and gas producing industries] Pravila bezopasnosti v neftegazodobyvaiushchei promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 123 p.

(MIRA 14:3)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru. 2. TSentral'nyy apparat Gosgortekhnadzora RSFSR (for Kutukov, Zaytsev, Drogalin, Polesin, Kostyukov, Kuras, Luzhnikov, Rodionov, Blokh). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut po tekhnike bezopasnosti (for Sultanov). 4. Upravleniya okrugov Gosgortekhnadzora RSFSR (for Bibilurov, Petrov, Kharchevnikov). 5. TSentral'nyy komitet profsoyuza rabochikh neftyanoy i khimicheskoy promyshlennosti (for Andrianov).

(Oil fields--Safety measures)
(Gas industry--Safety measures)

SHATALOV, V.P.; KOSTYUKOV, N.M.; POPOVA, Ye.N.; CHULYUKOVA, T.A.; NEDOYNOVA, L.A.

SKS-30AM highly plastic oil-extended divinyl-styrene rubber. Kauch. i rez. 18 no.1:4-6 Ja '59. (MIRA 12:1)

1. Voronezhskiy zavod sinteticheskogo kauchuka imeni S.M. Kirova.
(Rubber, Synthetic)

The Preparation of Oil-Filled 1,3-Butadiene-Styrene Rubber SKS-30M

in Table 4. Results showed that this type of rubber can be used for the manufacture of inner tubes and tyres. The composition of the industrial test batch, as well as of the oil emulsion, is given. This rubber was dried at the following temperatures: the first zone 110 - 130°C; the second zone 110 - 124°C; the third zone 104 - 112°C. There are 4 Tables.

ASSOCIATION: Voronezhskiy zavod sinteticheskogo kauchuka im. S. M. Kirova (Voronezh Factory for Synthetic Rubber im. S. M. Kirov)

The Preparation of Oil-Filled 1,3-Butadiene-Styrene Rubber SKS-30M

the lubricating oil Mark 18 a slight lowering of the specific physico-mechanical properties of rubber SKS-30 can be observed, but this lowering is of the same order as for the low-temperature rubber SKS-30A when using an equal amount of filler. A 15 - 20% decrease in strength occurs when 25% of the filler is used (Table 3). The addition of the lubricating oil Mark 18 to the rubber SKS-30 (hardness 2,000 - 2,500 g and 1,000 - 1,500 g) leads to analagous changes, but at a hardness of 2,000 - 2,500 g it suffices to add 15% of the lubricating oil to obtain a rubber of a hardness of about 1,000 g. Improved plasticity can be obtained in the same mixer by adding plasticisation accelerators. Experiments on lowering the hardness to 400 g showed that it was necessary to use 30% of the filler. This quantity, however, lowers the physico-mechanical properties of the rubber. Experiments were carried out in the Voronezh Plant SK in co-operation with VNIISK on the industrial production of a batch of oil-filled 1,3-butadiene-styrene rubber obtained during high-temperature polymerisation (SKS-30M-15) containing 14 - 17% oil. Characteristics of this batch are given

SOV/138-58-4-8/11

AUTHORS: Shatalov, V. P; Bashkatov, T. V; Kostyukov, N; M. Popova, Ye.N; Chulyukova, T. A; Krygina, M. K. G.

TITLE: The Preparation of Oil-Filled 1,3-Butadiene-Styrene Rubber SKS-30M (K voprosu polucheniya maslonapolnennogo divinil-stirol'nogo kauchuka SKS-30M)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 9, pp 4 - 7 (USSR)

ABSTRACT: Unsatifactory results were obtained with a batch of rubber SKS-30M produced in the Voronezh Factory for Synthetic Rubber during 1955 - 1956. The authors investigated the possibility of improving the properties of this rubber by using "controlled" latex. When a control agent is added to the rubber SKS-30 only 45% of insoluble substances are found as compared with 87% when no control agent is added. An increased content of insoluble particles in the rubber impairs the technological properties of the rubber mixtures (Table 1). Table 2 gives data on the physico-mechanical characteristics of rubbers containing 15% oil fillers. The elasticity and residual elongation of both rubbers are of the same order. The oil-filled controlled rubber SKS-30M-15 is softer and plasticises quicker. When vulc-

Card 1/3

The Preparation of 1,3 Butadiene-Styrene Rubber With Oil Fillers. (Part 1).

latex varied between 37 - 42 dyn/cm and the properties of CKC-30AM prepared from the C_{17} - C_{21} fractions of fatty acids are given in Table 3. It was found that it was not necessary to cool the latex to a temperature of 45 - 50°C, but the temperature of the latex before mixing could reach 55 - 60°C. The stability of the oil-latex emulsion is not improved by decreasing the temperature. Latex with a surface tension up to 43 dyn/cm can be used for the manufacture of the rubber CKC-30AM. Synthetic fatty acid fractions C_{17}-C_{21} can be used for preparing the lubricating oil emulsion-18 together with stearic acid, and ammonia can be used as well as triethanolamine.

Card 3/3

ASSOCIATION: Voronezh Plant SK im S. M. Kirov. (Voronezhskiy zavod SK im S. M. Kirova)

AVAILABLE: Library of Congress.

130-1-7/16

Kostyukov, N. N.

AUTHORS: Shatalov, V. P; Kostyukov, N. N; Bashkatov, T. V; Yazikova, Ye. G; Chulyukova, T. A; Popova, Ye. N.

TITLE: The Preparation of 1,3-Butadiene- Styrene Rubber With Oil Fillers. (Part 1). Polucheniye maslonapolnennogo divinil-stirol'nogo kauchuka - soobshcheniye 1).

PERIODICAL: Kauchuk i Rezina, 1958, Nr.1. pp. 24 - 27. (USSR).

ABSTRACT: BHИИSK has evolved a method for the addition of mineral oil to latex during the processing of 1,3-butadiene-styrene rubber with oil fillers by determining the requirements of emulsified oils. In the Voronezh Plant for Synthetic Rubber an oil emulsion was added in a continuous manner to the latex stream. SKS-30A with a surface tension not exceeding 38 din/cm was tested. The latex was cooled to a temperature of 25 - 30°C before the oil emulsion was added which, in turn, was also cooled to a temperature of 30°C. Under these conditions coagulation of the latex and the oil emulsion took place after a few minutes. The 1,3-butadiene-styrene rubber SKS-30A was prepared similarly as SKS-30AM, according to a method evolved by A. Ye. Kalaus, M. A. Robinerzon,

Card 1/3

---, the latex was
---. The surface tension of the

KOSTYUKOV, A.I.

How many preventers should be installed. Neftianik 6 [illegible] (MIRA 14:10)
no.9:12 S '61.

1. Starshiy inzhener otdela nefti i geologii Gosgortekhnadzora [illegible].

(Oil fields--Production methods)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300035-6

KOSTYUKOV, N.

BU-75 Br drilling rig needs improvement. Neftianik 7 no.5:11 My '62. (MIRA 15:12)
(Oil well drilling rigs)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300035-6

KOSTYUKOV, N.

School of culture in a construction school. Prof.-tekh.obr. 20 no.2:17-18 F '63. (MIRA 16:2)

(Moral education)
(Aesthetics--Study and teaching)

KOSTYUKOV, N.

New equipment reduces injuries. Neftianik 7 no.2:27 F '62.
(MIRA 15:2)

1. Glavnyy inspektor neftyanogo otdela Gosgortekhnadzora RSFSR.
(Oil fields—Safety measures)

KOSTYUKOV, M.A.; GAVRILOV, V.I.; DODONOVA, N.N.; DREYZIN, R.S.

Results of the indentification of adenoviruses of the monkey type M. Vop. virus. 10 no.4:483-486 Jl-Ag '65. (MIRA 18:8)

1. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR i Gosudarstvennyy kontrol'nyy institut meditsinskikh biologicheskikh preparatov imeni L.A. Tarasevicha, Moskva.

T-3

USSR/Human and Animal Physiology (Normal and Pathological).
Blood. Hemopoiesis.

Abs Jour : Ref Zhur - Biol., No 16, 1958, 74621

Author : Kostyukov, L.P.

Inst : Dagestan Medical Institute.

Title : Erythropoiesis in Birds.

Orig Pub : Sb. nauchn. tr. Dagest. med. in-t, 1956, 6, 194-195.

Abstract : By the method of karyometry the developement of erythrocytes in brids of different orders was investigated. The growth of erythroblasts is completed in chickens (C), sandpiper (S), seagulls (SG), Mocenados (M) with an average size of 6.5 μ, of kingfishers (K), 6.5-6.8 μ passerines (P) 3.9-5.2 μ, herons (H) 5.2, geese (G) 5.2-6.2 μ, bird of prey (B) 5.8-6.5 μ. Sizes of the nuclei of the earliest normoblasts: in C 2.4-2.6 μ, H, S, P, SG, G,

Card 1/2

USSR/Human and Animal Physiology (Normal and Pathological).
Blood. Blood-Formation.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 79371.

Author : Kostyukov, L.P.
Inst :
Title : On the Problem of the Formation of "Nuclear Shadows" in Amphibians.

Orig Pub: Sb. nauchn. tr. Dagest. med. in-t, 1956, 6, 192-193.

Abstract: The blood from the liver of a frog was investigated in humor preparations during the course of several days. In the first hours, the cytoplasm of the erythrocytes began to swell and lost intensity of color; vacuolation began. The nucleus took on a globelike form and granulation appeared within the nucleus. Then lysis of the cytoplasm set in,

Card : 1/2

KOSTYUKOV, L. G.

36816. K voprosu obrabatyvayemosti zheleznodorozhnykh bandazhey. Sbornik trudov Tbilis. in-ta inzhenerov zh.-d. transporta nm. Lenina, XVII-XVIII, 1948, c. 599-603

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

KOSTYUKOV, I.I.

Important industrial potential. Metallurg 9 no.3:1-2 N '64.
(MIRA 18:2)

1. Predsedatel' TSentral'nogo komiteta professional'nogo soyuza rabochikh metallurgicheskoy promyshlennosti.

KOSTYUKOV, I.I.

International Forum of Miners. Gor.zhur. no.12:67-68 D '64.
(MIRA 18:1)

1. Predsedatel' TSentral'nogo komiteta professional'nogo soyuza rabochikh metallurgicheskoy promyshlennosti.

KOSTYUKOV, I.I.

Efforts to produce more and a better quality of metal. Metallurg 9 no.7:1-2 Jl '64. (MIRA 17:8)

1. Predsedatel' TSentral'nogo komiteta professional'nogo soyuza rabochikh metallurgicheskoy promyshlennosti.

KOSTYUKOV, I.I., dotsent.,; EL'KINA, A.M.(Khar'kov)

Significance of increased unipolar lead from the left leg in electrocardiography. Klin. med. 34 no.2:63-67 F '56 (MLRA 9:6)

1. Iz TSentral'noy klinicheskoy psikhonevrologicheskoy i neyrokhirurgicheskoy bol'nitsy MPS.

(ELECTROCARDIOGRAPHY
increased
unipolar lead to the left leg, significance)

KOSTYUKOV, I. I.

Kostyukov, I. I. - "Properties of the clinical course of undulating typhus", Vrachеb. delo, 1949, paragraphs 323-24.

SO: U-4329, 19 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 21, 1949).

KOSTYU[illegible]

Traditional metalworker's holiday. Metallurg 10 no.7:1-3 Jl '65.
(MIRA 18:7)

1. Predsedatel' TSentral'nogo komiteta professional'nogo soyuza rabochikh metallurgicheskoy promyshlennosti.

KOSTYUKOV, I.I.

Getting ready to greet the trade union congress. TSvet. met. 38 no.11:5-9 N '65. (MIRA 18:11)

1. Predsedatel' TSentral'nogo komiteta professional'nogo soyuza rabochikh metallurgicheskoy promyshlennosti.

KOSTYUKOV, I.; MOISEYEV, G.

Twenty-Fourth National Congress of the [illegible]
Metalworkers. Metallurg 10 no.[illegible] [illegible].

(MIRA 18:3)

1. Predsedatel' TSentral'[illegible]
rabochikh metallurgicheskoy promy[illegible].
2. Predsedatel' zavodskogo komiteta [illegible]
rabochikh metallurgicheskoy promy[illegible]
staleprokatnogo zavoda (for K[illegible].

KOSTYUKOV, D.M., gornyy inzh.; BATANOV, A.I., gornyy inzh.

Krivoy Rog Northern Ore-dressing Combine. Gor. zhur. no.10:30-34 O '61. (MIRA 15:2)

1. Krivbassproyekt, Krivoy Rog (for Kostyukov).
(Krivoy Rog Basin--Ore dressing)
(Iron ores)

L 18454-66 EWT(d)/EWP(1)

ACC NR: AP6006377 SOURCE CODE: UR/0413/66/000/002/0109/0109

INVENTOR: Starokol'tsev, V. I.; Kostyukov, B. V.; Malinka, A. V.

ORG: none

TITLE: Ultrasonic device for automatically following a welded joint. Class 42, No. 178152 [announced by the V. I. Lenin Pipe Rolling Plant (Truboprokatnyy zavod)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 109

TOPIC TAGS: welding inspection, piezoelectric transducer, ultrasonic inspection

ABSTRACT: This Author's Certificate introduces an ultrasonic device for automatically following a welded seam during inspection. The unit contains ultrasonic piezoelectric pickups, an electronic amplifier circuit and a mechanism for moving the pickups along the seam. Changes in the diameter of the pipe and variations in the wall thickness are compensated by using two piezoelectric pickups located symmetrically with respect to the seam and an additional electronic circuit which generates an error signal proportional to the difference between the times of arrival for the ultrasonic oscillations reflected from the seam to the first and second pickups.

SUB CODE: 13, 20/SUBM DATE: 07Sep64

Card 1/1 UDC: 620.179.16.05 621.791.019

ACC NR: AP7002716 (A) SOURCE CODE: UR/0381/66/000/006/0016/0020

AUTHOR: Kostyukov, B. V.

ORG: Dnepropetrovsk Pipe Rolling Plant imeni V. I. Lenin (Dnepropetrovskiy truboprokatnyy zavod)

TITLE: Mechanical stabilization of contact between an ultrasonic transducers and an object being examined

SOURCE: Defektoskopiya, no. 6, 1966, 16-20

TOPIC TAGS: weld defect, ultrasonic flaw detector, defectoscope, pipe seam defect, ultrasonic inspection /DST-5M ultrasonic flaw detector

ABSTRACT: The DST-5M device for the mechanical stabilization of contact between ultrasonic transducers and a pipe weld being examined for flaws in the production flow line of a 51-152 electric pipe-welding mill is described. Extensive tests of the device in industry have demonstrated its efficiency and simplicity of operation in the automatic ultrasonic detection of flaws in pipe seams. Orig. art. has: 4 figures. [Based on author's abstract] [SP]

SUB CODE: 13, 14/SUBM DATE: 16Mar66/

Card 1/1 UDC: 620.179.16

KOSTYUKOV, A.A.; KOMPANIYETS, M.F.

Determining the molar ratio $NaF;AlF_3$ in the lectrolytes of aluminum electrolytic cells containing magnesium fluoride. TSvet. met. 38 no. 12:52-54 D '65 (MIRA 19:1)

BELYAYEV, A.I.; KOSTYUKOV, A.A.

Conference of workers in the aluminum industry on the composition of electrolytes. TSvet. met. 36 no.8:89-91 Ag '63. (MIRA 16:9)
(Aluminum industry--Congresses) (Electrolytes--Analysis)

KOSTYUKOV, A.A.

Dependence of current efficiency in the electrolytic production of aluminum on the anodic gas composition. TSvet. met. 36 no.3:37-43 Mr '63. (MIRA 16:5)
(Aluminum--Electrometallurgy)

L 18415-63
ACCESSION NR: AP3005804

of 3-4% MgF_2 and 2-4% NaCl or an equivalent mixture of 2-3% Mgcl with 1-2% MgF_2 together with a quantity of CaF_2 which is formed in the vat by natural means. The members recognized the addition of lithium salts to the electrolyte as being a necessary topic in future studies. Orig. art. has: no graphics

ASSOCIATION: none

SUBMITTED:	10May63	DATE ACQ:	06Sep63	ENCL:	00
SUB CODE:	ML, IE	NO REF SOV:	000	OTHER:	000

Card 2/2

L 18415-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD
ACCESSION NR: AP3005804 S/0136/63/000/008/0089/0091

55

AUTHORS: Belyayev, A. I.; Kostyukov, A. A.

TITLE: Meeting of workers of the aluminum industry to discuss the composition of electrolyte

27

SOURCE: Tsvetny*ye metally*, no. 8, 1963, 89-91

TOPIC TAGS: aluminum, aluminum industry, cryolite, magnesium fluoride, NaCl, MgCl, calcium fluoride, lithium salts

ABSTRACT: This article describes the meeting of industrial research institutions and aluminum concerns which summarized the work and investigations devoted to various electrolytes for aluminum vats and gave recommendations of their optimum compositions. The members recommended that, as a further technical progress in the production of aluminum, the cryolite ratio to the electrolytes of the aluminum vats must be retained within the limits of 2.6 to 2.8 with total additions to the electrolyte of 8 to 10%. The additions must consist of mixtures of magnesium fluoride with sodium chloride in quantities

27

Card 1/2

S/826/62/000/000/002/007
D408/D307

AUTHORS: Kamenetskiy, M.V., Kostyukov, A.A. and Korchakov, V.A.

TITLE: The ternary system of sodium, titanium and barium chlorides

SOURCE: Fizicheskaya khimiya rasplavlennykh soley i shlakov; trudy Vses. soveshch. po fiz. khimii raspl. soley i shlakov, 22 noyabrya 1960 g., Moscow, Metallurgizdat, 1962, 60-62

TEXT: The authors studied the phase diagram of the ternary system $NaCl--TiCl_3--BaCl_2$ in the region of compositions suitable for the electrolytic production of titanium, because the addition of $BaCl_2$ to the system $NaCl--TiCl_3$ (in order to prevent separation of the electrolyte components), alters the physico-chemical properties of the electrolyte. The cited binary system was also studied, up to 55.5 mol % $TiCl_3$ content, because of the discrepancies in the data concerning this system obtained by

Card 1/2

The ternary system ...

of discrepancies in the phase diagrams obtained for this system by various authors. From the investigation of the binary system it was found that the eutectic contained 15 mol % $TiCl_3$ and melted at 676°C, the compound $3KCl.TiCl_3$ melted at 760°C, and the compound $2KCl.TiCl_3$ melted incongruently. A peritectic transition occurred at 40 % $TiCl_3$ and 580°C, in accordance with the reaction $K_2TiCl_5 \rightleftharpoons$ liquid + K_3TiCl_6. The crystallization surface in the investigated region of the ternary system is represented by the four crystallization fields KCl, $BaCl_2$, K_3TiCl_6, and K_2BaCl_4, and the triangulating secants are K_3TiCl_6--K_2BaCl_4 and K_3TiCl_6--$BaCl_2$, which divide the system into three secondary systems: KCl--K_3TiCl_6--K_2BaCl_4, K_3TiCl_6--K_2BaCl_4--$BaCl_2$, and K_3TiCl_6--$BaCl_2$--$TiCl_3$. The latter system was not investigated since it encompasses the region of melts difficult to obtain at normal pressure. In the portion of the phase diagram which was studied, the lowest melting point, 600°C, occurs in the region of the ternary eutectic points having compositions ($TiCl_3$ 4.6,

Card 2/3

Card 3/3

S/826/62/000/000/001/007
D408/D307

AUTHORS: Kamenetskiy, M.V., Kostyukov, A.A. and Hsiao Te-Ch'uang

TITLE: The ternary system of potassium, barium, and titanium chlorides

SOURCE: Fizicheskaya khimiya rasplavlennykh soley i shlakov; trudy Vses. soveshch po fiz. khimii raspl. soley i shlakov, 22 - 25 noyabrya 1960 g., Moscow, Metallurgizdat, 1962, 54 - 59

TEXT: The authors studied the phase diagram of the system $KCl--TiCl_3--BaCl_2$ in the region of compositions suitable for the electrolytic production of titanium up to 40 mol % $TiCl_3$, at atmospheric pressure, because the addition of $BaCl_2$ to the system $KCl--TiCl_3$, (in order to prevent separation of the electrolytic components), alters the physico-chemical properties of the electrolyte. The cited binary system was also studied, up to 41.6 mol % $TiCl_3$ content, because of the existence

Card 1/3

KOSTYUKOV, A.A.

Consumption of fluorides in the electrolytic preparation of aluminum. TSvet. met. 33 no.6:50-54 Je '60. (MIRA 14:4)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut.
(Aluminum—Electrometallurgy) (Fluorides)

Ternary System of Potassium, Magnesium, and Titanium Chlorides

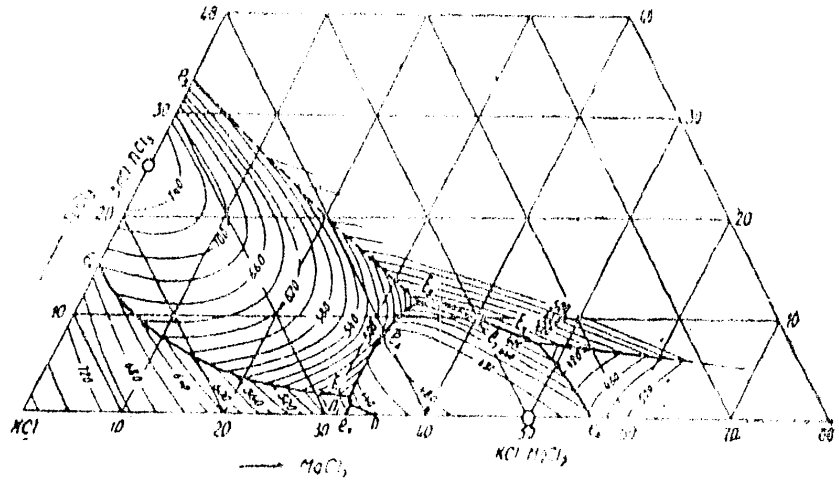

Fig. 2. Concentration triangle for KCl-$MgCl_2$-$TiCl_3$ system with isotherms.

Card 6/6

Ternary System of Potassium, Magnesium, and Titanium Chlorides

as shown in Fig. 1. The crystallization surface is represented by six crystallization fields (three corresponding to original salts and three to compounds $2KCl \cdot TiCl_2$ and $KCl \cdot MgCl_2$, as well as ternary eutectic phase A. The fields converge in four nonvariant points: three eutectic and one hypereutectic. Their characteristics are given. In their conclusions the authors indicate that the lowest melting alloys of the ternary system are in the vicinity of eutectic points E_2 and E_3 (~550° C). The formation of a stable compound $2KCl \cdot TiCl_2$ which is soluble in melten K, Mg, and Ti chlorides is confirmed. There are 7 figures; 1 table; and 5 references, 3 Soviet, 2 German.

ASSOCIATION: Leningrad Polytechnic Institute, Chair of Electrometallurgy of Non-Ferrous Metals (Leningradskiy politekhnicheskiy institut. Kafedra elektrometallurgii tsvetnykh metallov)

SUBMITTED: May 10, 1959

Ternary System of Potassium, Magnesium, and Titanium Chlorides

77728
30V/149-60-1-17/27

(11.5% $TiCl_3$). (VI) (50% KCl + 50% $MgCl_2$) $\longrightarrow$ $TiCl_3$ (8%) crosses the same boundary at 390° C. (VII) (40% KCl + 60% $MgCl_2$) $\longrightarrow$ $TiCl_3$ crosses field boundaries $MgCl_2$ and $TiCl_3$ at 440° C (6.7% $TiCl_3$). (VIII) (92.5% KCl + 7.5% $TiCl_3$) $\longrightarrow$ KCl · $MgCl_2$ crosses the field boundaries of KCl, 3KCl · $TiCl_3$ and KCl · $MgCl_2$ (38.5 and 62%) at 565 and 435° C, respectively. (IX) (3KCl · $TiCl_3$ $\longrightarrow$ KCl · $MgCl_2$ (63%) crosses field boundary 3KCl · $TiCl_3$ and KCl · $MgCl_2$ at 480° C. (X) (69% KCl + 31% $TiCl_3$) $\longrightarrow$ KCl · $MgCl_2$ (65%) crosses the same boundary at 416° C. (XI) KCL $\longrightarrow$ (71% $MgCl_2$ + 29% $TiCl_3$) crosses field boundaries of KCl, 3KCl · $TiCl_3$ at 568° C (80% KCl) and 420° C (56% KCl). The above experimental data were used for plotting the KCl-$MgCl_2$-$TiCl_3$ ternary system diagram as a projection of primary crystallization surfaces on the plane of a concentration triangle.

Card 4/6

Ternary System of Potassium, Magnesium, and Titanium Chlorides

77728
SOV/149-60-1-17/27

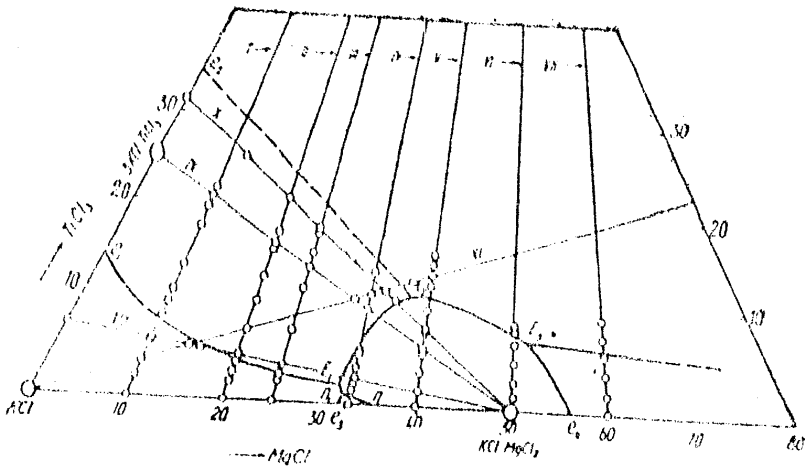

Fig. 1. Concentration triangle of $KCl-MgCl_2-TiCl_3$ showing cross sections and points of investigated alloys.

Card 3/6

sections is given as follows: (I) (90% KCl + 10% $MgCl_2$) $TiCl_3$ crosses the crystallization field boundaries of KCl, 3KCl·$TiCl_3$, and $TiCl_3$ (7.9 and 38.6%) at 615 and 590° C, respectively. (II) (80% KCl + 20% $MgCl_2$) $TiCl_3$ crosses the same boundaries at 640° C (4.5% $TiCl_3$) and 560° C 23% $TiCl_3$). (III) (75% KCl + 25% $MgCl_2$) $TiCl_3$ crosses the same boundaries at 490° C (3% $TiCl_3$) and 540° C (20% $TiCl_3$). (IV) (67% KCl + 33% $MgCl_2$) $TiCl_3$ crosses boundaries of fields of variable composition phase crystallization A, KCl · $MgCl_2$, 3KCl · $TiCl_3$ and $TiCl_3$ at 430° C (1% $TiCl_3$); 477° C (6% $TiCl_3$), and 470° C (15% $TiCl_3$). (V) (60% KCl + 40% $MgCl_2$) $TiCl_3$ crosses one field boundary KCl · $MgCl_2$ and $TiCl_3$ at 498° C

18.3100

77728
SOV/149-60-1-17/27

AUTHORS: Kamenetskiy, M. V., Kostyukov, A. A., Popov, A. N.

TITLE: Ternary System of Potassium, Magnesium, and Titanium Chlorides

PERIODICAL: Izvestiya vysshikh uchebnyk zavedeniy, Tsvetnaya metallurgiya, 1960, Nr 1, pp 119-122 (USSR)

ABSTRACT: Equilibrium diagrams of the above ternary system were investigated as an area of interest for titanium electrometallurgy. Previous work on this subject by A. I. Ivanov (DAN SSSR, Vol 86, Nr 3, 539, 1952) and M. V. Kamenetskiy (Tsvetnyye metally, Nr 2, 39, 1958) is cited. The study was based on cooling curve recordings of the system, with composition expressed in molar percentages. Eleven cross sections of the diagram were investigated as shown in Fig. 1. As melts high in $TiCl_3$ content could be studied insofar as saturated by this component, the position of monovariant line e_3E_3 (see Fig. 1) is determined tentatively. A short description of the cross

Card 1/6

Intensification of Working Aluminium Electrolysers

productivity of working electrolysers should be accompanied by more mechanization and better working conditions. There is 1 figure, 3 tables and 4 references, of which 3 are Soviet and 1 English.

ASSOCIATION: VAMI

Card 4/4

SOV/[illegible]-10/21

Intensification of Working Aluminium Electrolysers

factor and the authors recommend [illegible] for additives [illegible] give [illegible] electrolyte [illegible] a high electrical conductivity: they mention [illegible] and LiF (Li_3AlF_6) as being effective. Dealing with electrolyser design the authors disagree with the view that a reduction in the distance between the anode to the edge of the bath (which accompanies anode widening) must lead to lower current efficiency: they cite Soviet and foreign practice and give the results of their own calculations showing the benefits of anode widening. The high proportions of total resistance which is produced within the anode and the cathode arrangements have been indicated by [illegible] and L.[illegible].Lyuban[illegible] respectively (VAMI) and the authors discuss possible ways of reducing these resistances. They point out that present deficiencies in instrumentation make it difficult to operate electrolysers as desired and suggest that increases in

Card 3/4

SOV/[illegible]-10/21

Intensification of Working Aluminium Electrolysers

various factors (especially heat losses) the authors tabulate changes from 1953 values which occurred on some Soviet electrolysers in 1956 (table 3). As a quick measure for increasing the productivity of working electrolysers relatively little can be expected from improved current efficiency (already at 86-88%) and the most promising development would be to increase current strengths. The authors show that neither [illegible] equation (Fig.2) for the relation between current efficiency and current density and [illegible] is true [illegible], optimal conditions [illegible] electrolyte [illegible] (Fig.[illegible]) [illegible] by practice but the [illegible] improvements are different at different [illegible]. Increasing heat losses together [illegible] electrode distance [illegible] combination for [illegible] the authors consider the possibility of [illegible] voltages by decreasing the number and duration of [illegible] effects. Electrolyte composition is [illegible] important

Card 2/4

SOV/[illegible]-11-10/21

AUTHORS: Gupalo, I.P., Kostyukov, [illegible].

TITLE: Intensification of Working Aluminium Electrolyzers (Intensifikatsiya deyatel'yushchikh alyuminiyevykh elektrolizerov)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 11, pp 52-60 (USSR)

ABSTRACT: In the last five years considerable increases in productivity have been obtained mainly by current density increases at some Soviet aluminium works (20% at the Kandhersky, 28% on the fourth series at the Stalinskiy, 14-23% at the Dneprovskiy and 22% on the first series at the Kandalakshskiy). The authors examine possibilities and ways of further increasing the productivity of working electrolyzers. They analyse the electrical and thermal factors of electrolyser operation, tabulating (table 1) values for some of the leading works and the distribution of the current increases between heat losses, current efficiency and heating voltage (table 2). Discussing specific electricity consumption with respect to

Card 1/4

137-58-6-11498

An Investigation of the (cont.)

$NaMgF_3$-AlF_3 are not binary systems. The phase diagrams of these systems reveal branches of primary crystallization of the products of exchange between the starting components; 2) the ternary system NaF-AlF_3-MgF_2 is divided by the Na_3AlF-$NaMgF_3$ secant into 2 secondary systems: the ternary system NaF-Na_3AlF_6-$NaMgF_3$ and the ternary reciprocal salt-pair system $Na_3AlF_6+3MgF_2 \rightleftarrows 3NaMgF_3+AlF_3$; 3) the metastable diagonal sections Na_3AlF_6-MgF_2 and $NaMgF_3$-AlF_3 of this reciprocal salt-pair system testify to the state of equilibrium of the exchange reactions $Na_3AlF_6+3MgF_2 \rightleftarrows 3NaMgF_3+AlF_3$ in the melt, belonging to the class of reversible reciprocal salt-pair systems.

N.P.

1. Halogen fluorides--Microstructure 2. Halogen fluorides--Thermodynamic--Properties 3. Halogen fluorides--Exchange reactions 4. Electrolytes--Performance 5. Aluminum --Processing

Card 2/2

137-58-6-11498

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 35 (USSR)

AUTHORS: Kostyukov, A.A., Karpov, A.B.

TITLE: An Investigation of the Phase Diagram of the Ternary System Sodium Fluoride - Aluminum Fluoride - Magnesium Fluoride (Issledovaniye diagrammy sostoyaniya troynoy sistemy ftoristyy natriy-ftoristyy alyuminiy-ftoristyy magniy)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1957, Nr 188, pp 58-66

ABSTRACT: The methods of thermal analysis and microstructural analysis are used to study the following binary systems: 1) $NaF-MgF_2$; 2) MgF_2-AlF_3; 3) $Na_3AlF_6-MgF_6$; 4) $Na_3AlF_6-Na\ MgF_3$; and 5) $NaMgF_3-AlF_3$. Systems (1) and (2) are binary accessory systems, while (3), (4), and (5) are sections of the ternary system $NaF-AlF_3-MgF_2$, a study of which is necessary to clarify the effectiveness of addition of MgF_2 to the electrolyte during Al refining to reduce the m.p. of the electrolyte, to develop crystal-optical methods of monitoring the composition of the electrolyte in Al baths when MgF_2 is used as an addition, and to clarify the chemical reaction among the starting components. It is shown that 1) $Na_3AlF_6-MgF_2$ and

Card 1/2

137-58-6-11497

An Investigation of the (cont.)

quaternary system into 2 spaces. The alloys in the space adjacent to the cryolite corner of the tetrahedron, limited by the $5NaF \cdot 3AlF_3$-CaF_2-Al_2O_3 plane, undergo final solidification at the quaternary peritectic point at 685°C. The alloys lying in the $5NaF \cdot 3AlF_3$-Al_2O_3-$CaF_2 \cdot AlF_3$ space undergo final solidification at the quaternary eutectic point at 665°. The composition for the quaternary transition point is found.

N.P.

1. Aluminum oxide-halogen fluoride systems--Chemical reactions
2. Aluminum oxide-halogen fluoride systems--Properties
3. Aluminum oxide-halogen fluoride systems--Phase studies
4. Electrolytes--Composition 5. Aluminum--Processing

Card 2/2

137-58-6-11497

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 35 (USSR)

AUTHORS: Abramov, G.A., Kostyukov, A.A., Kulakov, L.B.

TITLE: An Investigation of the Phase Diagram of the Quaternary System Cryolite - Aluminum Fluoride - Calcium Fluoride - Alumina (Issledovaniye diagrammy sostoyaniya chetvernoy sistemy kriolit-ftoristyy alyuminiy-ftoristyy kal'tsiy glinozem)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1957, Nr 188, pp 45-57

ABSTRACT: Methods of thermal and optical analysis are used to study the phase diagram of the $5NaF \cdot 3AlF_3$-CaF_2-Al_2O_3 section of the quaternary system Na_3AlF_6-AlF_3-CaF_2-Al_2O_3 for the purpose of arriving at a better substantiated approach to the selection of the optimum composition of the electrolyte of Al baths, and in order to develop a crystal optical method of determining the molar ratio $NaF:AlF_3$ in baths containing CaF_2 and a crystal optical method of determining the CaF_2 content of Al bath electrolytes. The following is established: 1) the surface of the liquidus of the $5NaF \cdot 3AlF_3$-CaF_2-Al_2O_3 section is formed by 3 fields: cryolite, CaF_2, and Al_2O_3; 2) the $5NaF$-AlF_3-CaF_2-Al_2O_3 section divides the tetrahedron of the

Card 1/2

137-58-6-11902

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 102 (USSR)

AUTHORS: Abramov, G.A., Kostyukov, A.A., Nordvik, L.V.

TITLE: Effect of Additions of Magnesium Fluoride and Lithium Cryolite on the Electrical Conductivity of Cryolite-alumina Melts (Vliyaniye dobavok ftoristogo magniya i litiyevogo kriolita na elektroprovodnost' kriolit-glinozemnykh rasplavov)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1957, Nr 188, pp 40-44

ABSTRACT: A study is made of the effect of additions of lithium cryolite and Mg fluoride on the electrical conductivity of sodium cryolite. It is established that the electric conductivity of the melts when small amounts of lithium cryolite have been added undergoes an insignificant increase and that addition of lithium cryolite to the Al bath is desirable only when its cost is relatively low. The electric conductivity of melts of the Na_3AlF_6-MgF_2 system diminishes as the MgF_2 contents rise. A comparison of the results obtained with data previously published shows that addition of MgF_2 to the cryolite reduces its electric conductivity to the same degree as does addition of CaF_2. I.G.

Card 1/1

1. Aluminum oxides -cryolite--Electrical factors 2. Magnesium fluoride--Electrical effects 3. Cryolite-lithium--Electrical effects 4. Aluminum--Production 5. Electrolytic cells--Performance

KOSTYUKOV, A.A.

AGEYEV, P.Ya.; ALABYSHEV, A.F.; BAYMAKOV, Yu.V.; BELYAYEV, A.I.; BATASHEV, K.P.; BUGAREV, L.A.; VASIL'YEV, Z.V.; GUPALO, I.P.; GUS'KOV, V.M.; ZHURIN, A.I.; VETYUKOV, M.M.; KOSTYUKOV, A.A.; LOZHKIN, L.N.; OL'KHOV, N.P.; OSIPOVA, T.V.; PERTSEV, I.I.; RUMYANTSEV, M.V.; STRELETS, Ye.L.; FIRSANOVA, L.A.; CHUPRAKOV, V.Ya.

Georgii Alekseevich Abramov. TSvet.met. 27 no.2:72-73 Mr-Ap '54. (MLRA 10:10)
(Abramov, Georgii Alekseevich, 1906-1953)

ABRAMOV, G.A.; VETYUKOV, M.M.; GUPALO, I.P.; KOSTYUKOV, A.A.; LOZHKIN, L.N.

[Theoretical principles of aluminum electrometallurgy] Teoreticheskie osnovy elektrometallurgii aliuminiia. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 583 p. (MLRA 6:12)
(Aluminum--Electrometallurgy)

Summary D-180694, 14 Feb 55

KOSTYUKOV, Aleksandr Aleksandrovich, prof., doktor tekhn. nauk;
KRUGLOVA, Ye.M., red.; LAVRENOVA, N.B., tekhn. red.

[Theory of ship construction] Teoriia korablia. Moskva, Morskoi transport, 1962. 318 p. (MIRA 15:7)
(Naval architecture)

BOGOSLOVSKIY, A.M.; KOSTYUKOV, A.A.; MATTUSHINA, S.P., red.; LAVRENOVA, N.B., tekhn.red.

[Phenomenon of the reciprocal attraction of ships] IAvlenie vzaimnogo prisasyvaniia sudov. Moskva, Izd-vo "Morskoi transport," 1960. 77 p. (MIRA 14:2)
(Collisions at sea) (Ships--Hydrodynamics)

10,4900

AUTHOR: Kostyukov, A.A. (Odessa)

TITLE: Determination of the Profile of Transverse Waves on the Surface of a Liquid behind a Moving Body

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniya tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, No. 6, pp 143-144 (USSR)

ABSTRACT: The profile of a wave with a small amplitude generated by a moving ship is considered. The equation of waving is defined as Eq (1), where q - distribution of sources of waving on the surface S, w_1 - equation of waving motion at the point (ξ, η, ζ) (Eqs 2 and 4). The wavelength λ is defined by Eq (6). The wave profile can be determined from Eqs (1) and (4) and written as Eqs (7) - (10), where L and T - length and depth of ship; $\eta = f(\xi, \zeta)$ - equation of submerged surface; B - width of the ship. The values of k depend on the Fourier number $F = v/\sqrt{gL}$ which can be found from Tables. The calculated values of F (see Table p 144) showed agreement with the experimental data given in the Figure, p 144.

Card 1/2

KOSTYUKOV, Aleksandr Aleksandrovich; BOL'SHAKOV, V.P., kand.tekhn.nauk, otv.red.; MIKHAYLOV, N.G., kand.tekhn.nauk, otv.red.; OSVENSKAYA, A.A., red.; SHISHKOVA, L.M., tekhn.red.

[Theory of ship waves and wave resistance] Teoriia korabel'nykh voln i volnovogo soprotivleniia. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl., 1959. 310 p. (MIRA 13:1)
(Ship resistance) (Waves)

KOSTYUKOV, A.A.

24-11-25/31

AUTHOR: Kostyukov, A. A. (Odessa)

TITLE: Approximate formulae for the wave resistance of ships in shallow water. (Priblizhennye formuly dlya volnovogo soprotivleniya sudov na melkovod'ye)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.11, pp. 181-184 (USSR)

ABSTRACT: Khaskind, M. D. (Ref.1) and the author of this paper (Ref.2) published approximate methods of calculation of the wave resistance of long ships in deep water; these methods are extended in this paper to the case of a finite depth of the liquid. The wave resistance of a narrow ship R_w at a finite depth of the liquid h is calculated by using the equation published by Sretenskiy, L. N. (Ref.3), Eq.(1.1). For large Froude numbers Eq.(3.2), p.182, applies which represents the wave resistance of a dipole located in the centre of the ship and having the moment $m = vV$. Approximate formulae are derived for a narrow ship and a sufficiently small depth of the liquid; the ship can be assumed as being a cylinder, with the water line as its base and a draught T approaching h. The ship's speed is thereby assumed as being above the critical value.

Card 1/2

Name: KOSTYUKOV, Aleksandr Aleksandrovich

Dissertation: Theory and methods of calculating wave formation and ship resistance to waves

Degree: Doc Tech Sci

Affiliation: Odessa Inst of Engineers of Naval Fleet

Defense Date, Place: 9 May 57, Council of Inst of Mechanics, Acad Sci USSR

Certification Date: 19 Oct 57

Source: BMVO 23/57

ASSOCIATION: Odessa Institute of Marine [illegible]
Institut Inzhenerov Morskogo Flota).

AVAILABLE:

USSR/Physics - Wave resistance FD-2853

Card 1/1 Pub. 85-6/16

Author : Kostyukov, A. A. (Odessa)

Title : Wave formation and wave resistance of ships in a bounded channel of liquid

Periodical : Prikl. mat. i mekh., 19, Sep-Oct 1955, 557-570

Abstract : The author considers the wave formation and wave resistance of bodies (ships) floating under the free surface of a liquid of finite depth and in a channel of rectangular cross section. Eighteen references: e.g. A. A. Kostyukov, "Formulas for calculating wave resistance and buoyancy of bodies immersed in a liquid," ibid., 18, No 2, 1954; A. M. Basin, "Principles of the theory of interaction of engine with ship hull," Trudy TsNII im. Krylova, No 27, 1948; A. M. Basin, "Operation of engine close to the free surface," Trudy TsNII im. Krylova, No 26, 1948; Ya. I. Voytkunskiy, "Peculiarities of the resistance of ships in the region of critical velocity," Trudy Leningrad. korablestroitel'nogo instituta, No 11, 1953, 3-6.

Institution :

Submitted : January 15, 1955

KOSTYUKOV, A.A. (Odessa)

Ship waterline design. Izv.AN SSSR. Otd.tekh.nauk no.10:166-169 O'55. (MLRA 9:1)
(Stability of ships) (Ship resistance)

KOSTYUKOV, A.A. (Odessa)

Analytic methods for calculating the wave resistance of ships in deep waters. Izv. AN SSSR. Otd.tekh.nauk no.8:37-59 Ag '55. (MLRA 9:1)
(Stability of ships)